

S/N 10/580,061

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	CAO	Examiner:	P. LEITH
Serial No.:	10/580,061	Group Art Unit:	1655
Filed:	FEBRUARY 20, 2007	Docket No.:	14556.7USWO
Title:	EXTRACTION METHOD AND THE APPARATUS THEREOF		

DECLARATION UNDER 37 C.F.R §1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Zhen-Gang Zhu, declare as follows:

1. I am a Research Professor in the Institute of Solid State Physics of Chinese Academy of Sciences (CAS).
2. I graduated from the Department of Physics at Moscow University in Russia in 1965. Since then, I have conducted extensive research in condensed matter physics, materials science and internal friction at Beijing Institute of Physics CAS, Hefei Institute of Physics Plasma CAS and Institute of Solid State Physics CAS. I have published more than 100 scientific papers in international journals and have been awarded a number of CAS prizes for research projects that I headed. I have also supervised eight Ph.D. students and nine Masters Degree students.
3. I have reviewed, and understand, the U.S. Patent Application Serial Number 10/580,061 ("present application").
4. I am familiar with the concept of vibration, including both linear- and non-linear vibration, as the concept is fundamental to studying internal friction, which is a main focus of my research.

5. In theoretical terms, non-linear vibrations are vibrations produced in systems in which Hooke's Law does not apply. That is, the restoring force is not proportional, or linear, with the displacement. An alternative definition of non-linear vibration is that the damping (frictional) force is not proportional, or linear, with the speed of the vibrating body.

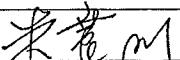
6. In such a non-linear system, when an oscillatory driving force of a single frequency is applied, the vibrations it produces contains not only the frequency of the driving force, but also additional frequencies, namely, the harmonics of the frequency of the driving force. In addition, if the driving force itself contains multiple frequencies, the resultant vibrations contain harmonics of each of the frequencies of the driving force.

7. Of course, all practical systems deviate somewhat from pure theory, and even a well-designed system for producing linear vibrations may produce at least a trace amount of non-linear vibrations. However, I understand that under the U.S. patent law, claim terms are interpreted according to what they mean to a person of ordinary skill in the art. By that standard, whether a vibration is non-linear in this case is determined by those in the substance extraction field, that is, whether the vibrations of particular frequencies produced are significantly strong to extract substances. Therefore, an otherwise linear system that produces only a trace amount of harmonics would not be considered to produce non-linear vibrations by those of ordinary skill in the technical field of this patent application, even though in terms of pure physics no system is perfectly linear.

8. In the present application, the Applicant describes that under critical pressure, water is able to dissolve different substances at different frequencies (see the Specification at page 4, line 19-page 5, line 5). Using nonlinear vibration covering the specified frequency range, therefore, many types of the medicinal material can be extracted using water. At page 9, line 23-page 10, line 1, full-composition extraction is again discussed as an advantage of the invention. It is therefore clear from the Specification that the nonlinear vibration must contain multiple frequencies spanning a useful range and be of sufficient strength for substance extraction. Therefore, in light of the Specification, it is my opinion that one of ordinary skill in the art would interpret "18-33 kHz nonlinear vibration" to mean vibrations of multiple frequencies, all falling in the range of 10-33 kHz.

9. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name: Zhen-Gang Zhu

Signature: 

Date: 2010.4.12.